MafB is essential in macrophages for regulating Brown Adipose Tissue's cold-induced Neuronal arborizations

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論文概要

Dissertation Abstract

Title of Doctor Dissertation:

MafB is essential in macrophages for regulating Brown Adipose Tissue's cold-induced Neuronal arborizations.

(マクロファージにおける MafB は褐色脂肪組織への交感神経発達を促し体温調節を制御する)

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Abstract

Obesity becomes an epidemic disease in modern times. The population of the overweight raised up to 39 % as per the World Health Organization (WHO) 2016 report. Interestingly, the WHO data indicates the countries are having a higher prevalence of obesity mostly have a cold climatic environment. To solve the high prevalence of obesity in cold climatic regions, there is a need for more exploration cause behind and finding out new possible drug targets to burn extra calories consumed.

Here in our current study, we have identified a new pathway that can be beneficial for our understanding of increasing thermogenic metabolism for a healthier life. In our current study, we have found *Mafb* in macrophages suppresses proinflammatory cytokine *Il6* and could increase sympathetic neurons in Brown Adipose Tissue (BAT). We used macrophage-specific *Mafb* deficient mice, which show a deficiency in cold adaptation and thermogenic metabolism, with increased *Il6* expression. The increased Il6 expression further suppresses an important neurotrophin hormone of BAT and end up with compromised neuronal plasticity upon cold induction, which finally reduces the BAT functions. While, when we treated this mouse with IL6-Receptor blocker, the mouse can restore his compromised ability for cold adaptation.